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ACCESSION NR: AP5005341 0

where θ is the relative period of switch operation, $E_0(t)$ is the random voltage, and U is the capacitor voltage. This general solution is applied to a number of particular cases: (a) normal distribution of noise, (b) Rayleigh distribution of noise, (c) uniform distribution of noise, (d) a sinusoidal voltage with a random phase is applied, (e) a sum of n sine waves with random phases is applied. Formulas and curves for the probability density of θ are presented. The formulas are corroborated by some experiments staged with a noise generator and an electron-tube blocking oscillator. Orig. art. has: 11 figures and 55 formulas.

ASSOCIATION: none

SUBMITTED: 02Jan64 ENCL: 00 SUB CODE: EC

NO REF SOV: 001 OTHER: 000

Card 2/2 mb

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Protopopov, A. Ye.

F

N

1101. EXPERIENCE IN BURNING NATURAL GAS IN SMALL BURNERS UNDER LARGE STEAM BOILERS. Zhishchenko, F. N. and Protopopov, A. Ya. (Za. Ekon. Topliva (Fuel Econ.), Nov. 1950, 13-16).

A description is given of the conversion of a set of boilers, each with an output of 75-82 tons of steam per hr at 35 atm. to natural gas instead of pulverized anthracite duff-firing. 102 gas burners per boiler are used, each consisting of a short perforated pipe. Twelve of them encircle the pubverized fule burners and ninety are situated in the secondary air inlets in the front wall of the furnace. (L).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROTOPOPOV, B. [translator]

To the upper limits of the vacuum. Tekh.mol.24 no.1/2:38-40 Ja-F '56. (Vacuum pumps)(Electron tubes) (MIRA 9:7)

PROTOPOPOV, B., inzhener

Energy from the fifth ocean. Tekh.mol.23 no.9:17-18 S'55.
(Wind power) (MIRA 8:12)

PROTOPOPOV, B.

Dredging Machinery

Floating excavator. Mol. Kolkh. 19 no. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, August 1952. Unclassified.

PROTOPOPOV, B.

Wrote about scientific expedition work in connection with Main Turkmen Canal and organized by the Academy of Sciences of the Uzbekskaya SSSR, Turkmenskaya SSSR.

Soviet Source: N: Komsomol'skaya Pravda, No. 89, 17 Apr. '51, Moscow. Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. 109006. Unclassified.

[illegible], B.

Fishing

Fish are attracted to light, Vokrug Sveta No. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, July 1952. UNCLASSIFIED.

PROTOPOPOV, B.M., kand.tekhn.nauk

Small-scale work mechanization in the maintenance of open drainage systems. Nauch. trudy KOMS no.1:138-148 '59. (MIRA 15:1)
(Kaliningrad Province--Drainage) (Aquatic weed control)

PROTOPOPOV, B.M., kand.tekhn.nauk

New excavator buckets for the removal of silt and swamp vegetation from open drainage systems. Nauch. trudy KOMS no.1:149-164 '59.
(MIRA 15:1)

(Dredging machinery) (Canals)

2

PROTIVA, M; NOVÁK, L; ŠEDIVÝ, Z.

Czechoslovakia

Research Institute for Pharmacy and Biochemistry
-- Prague - (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 9, 1962, pp 2102-2109

"Antihistamine Substances XLIX. p-Substituted
N-(α- Phenylethyl)ethyldiamine-derivate."

PROTOD'YAKONOV, M.M., prof.

Development of the theory of rock cutting. Izv.vys.ucheb.zav.; gor.zhur. no.3:3-11 '59. (MIRA 13:4)

1. Institut gornogo dela AN SSSR.
(Rocks) (Mining machinery)

PROTOD'YAKONOV, M.M., doktor tekhn. nauk, prof., red.; TEDER, R.I., kand. tekhn. nauk, red.; VASIL'YEV, Yu.F., red.izd-va; PRUSAKOVA, T.A., tekhn. red.; GUSEVA, A.P., tekhn. red.

[Study of the physicomechanical properties of rocks relative to problems in controlling rock pressure]Issledovanie fiziko-mekhanicheskikh svoistv gornykh porod primenitel'no k zadacham upravleniia gornym davleniem; sbornik statei. Pod red. M.M.Protod'iakonova i R.I.Tedera. Moskva, Izd-vo Akad. nauk SSSR, 1962. 192 p. (MIRA 16:3)

1. Akademiya nauk SSSR. Institut gornogo dela. 2. Institut gornogo dela im. A.A.Skochinskogo (for Protod'yakonov).
(Rocks--Testing)

PRCTCFCFOV, B. A.

Privcd So Stop-Dvigatelem. Elektrichesivo No. 4, 1952. Inzh.

SO: Monthly List of Russian Accessions, Library of Congress, August 1952~~1953~~, Uncl.

PROTOPOPOV, B. A.

USSR/Electricity - Distribution Systems Sep 52
Construction Projects

"Conference on the Power Supply and Electrification of the Newly Irrigated Regions," B. A. Protopopov, Engr

"Elektrichestvo" No 9, pp 91, 92

The Committee for Cooperation With the Great Const Projects of Communism, Presidium, Acad Sci USSR, jointly with the Power Eng Inst imeni Krzhizhanovskiy, held a conference in Mar 52 on power supply and electrification of the

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newly irrigated regions. The conference was attended by 110 delegates from 38 organizations and 17 reports were submitted on the characteristics of irrigation systems, the electromachine tractor station, power distribution in irrigated farm regions, and use of local resources in these regions.

232T63

PROTOPOPOV, B.A., inzhener.

Electric power plants operating on volcanic steam. [Abstract from Electric Times no.3175:452, '52.] Elektrichestvo no.5:92 My '53. (MLRA 6:6)
(Electric power plants)

PROTOPOPOV, B. A.

May 53

USSR/Electricity - Wind Power
Conferences

"Conference on Utilization of Wind," V. T. Poltoratskiy and B. A. Protopopov, Sci Associates of Wind-Power Eng Group, Power Eng Inst, Acad Sci USSR

6

Elektrichestvo, No 5, p 94

This 1st coordination conference on problems of wind-power utilization in USSR national economy, held 6 - 9 Jan 53, heard papers from affiliate of Central Aero-Hydrodynamics Inst; Power Eng Insts of Acads Sci USSR, Kazakh SSR, and Azerbaydzhan SSR;

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and All-Union Inst of Electrification of Agriculture. **Use of wind electrification in sparsely populated semidesert regions is mentioned.**

PROTOPOPOV, B. A.

AID P - 658

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 27/34

Author : Protopopov, B. A., Eng.

Title : New design of a wind power station (Review of Foreign Periodicals)

Periodical : Elektrichestvo, 9, 91, S 1954

Abstract : The author reports on this new construction developed in England using an article in Electrotechnik, No. 2, p. 44, 1954.

Institution : None

Submitted : No date

PROTOPOPOV, B.

Wind boiler. Tekh. mol. 23 no.4:12-13 Ap '55. (MLRA 8:6)
(Wind power) (Boilers)

PROTOPOPOV, B. M. Cand Tech Sci -- (diss) "Study of the operating organs of machines for the strengthening of mole-drainage walls by physicochemical
(All-Union Order of Lenin Acad Agr Sci im V.I.Lenin)
methods." Mos, 1958. 18 pp with diagrams (Min of Agriculture USSR. All-Union Sci Res Inst of Hydraulic Engineering and Improvement), 100 copies (KL, 13-58, 97)

PROTOPOPOV, V.S.

USSR

BORISHANSKIY, V. M., NOVIKOV, I. I. and KUTATELADZE, S. S., all with the Central Boiler and Turbine Institute imeni I. I. Polzunov, Leningrad - "Use of thermodynamic similarity in generalizing experimental data on heat transfer" (Section IV. B)

DOROSHCHUK, Vasiliy Ye., All-Union Scientific Research Thermotechnical Institute imeni F. E. Dzerzhinskiy - "Critical boiling in tubes" (Section III.A)

PETUKHOV, B. S., KRASNOSHCHEKOV, Ye.A., and PROTOPOPOV, V. S., all with the Moscow Power Engineering Institute, Ministry of Higher Education USSR - "An investigation of heat transfer to fluids flowing in pipes under supercritical conditions." (Section V)

ZABRODSKIY, S. S., Institute of Power Engineering, Academy of Science Byelorussian SSR, Minsk (1959 position) - "Heat transfer by fluidized bed" (Section VI)

Report submitted but not presented at the International Conference on Heat Transfer Boulder, Colorado, 28 Aug - 1 Sep 1961.

CA PROTOPOPOV, B.V.

11-H

Effect of various metals present in the eye on chemistry of intraocular fluids. B. V. Protopopov (S. M. Kirov Med. Inst., Gor'kii). *Vestnik Oftal'mol.* **31**, No. 3, 16-19 (1952).—Introduction of specimens of Al, Fe, and Cu into rabbit eyes gave the following chem. changes within. Perforative trauma alone (without foreign body) doubles the N content in the fluid of the frontal chamber and triples it in the vitreous body. Introduction of Al gave similar results with an early temporary rise of N in the vitreous body even beyond the above level. Introduction of Fe causes a rise of N in both eye portions to levels several times those found under plain trauma. Cu gave even greater increase of N with values up to 40 times the normal level.

G. M. Kosolapoff

PROTOPOPOV, B.V. (Gor'kiy)

"Problems of ophthalmology"; collection of papers dedicated to the memory of Professor I.A. Sharkovskii. Vest. oft. 76 no.3:89-92 My-Je '63. (MIRA 17:2)

DOBROTINA, A.N., kandidat meditsinskikh nauk; PROTOPOPOV, B.V., professor, direktor.

Congenital cysts of the left orbit. Vest.oft. 32 no.3:27-28 My-Je '53.
(MLRA 6:8)

1. Klinika glaznykh bolezney Gor'kovskogo meditsinskogo instituta imeni S.M.Kirova. (Eye--Diseases) (Cysts)

PROTOPOPOV, B. V.

Therapy with streptomycin combined with *p*-aminosalicylic acid in tuberculous diseases of the eye. B. V. Protopopov and A. N. Dobrotina (S. M. Kirov Med. Inst., Gorki). *Vestnik Oftalmol.* 32, No. 3, 17-2[illegible]. — Clinical results are cited with details, indicating that combined use of streptomycin with *p*-aminosalicylic acid is very effective against tuberculous ailments of the eye.

G. M. Kosolapoff

PROTOPOPOV, B.V., professor

Extraction of nonmagnetic foreign bodies from the anterior chamber of the eye with the aid of two spatulas. Vest.oft. 33 no.3:42 My-Je '54. (MLRA 7:6)

1. Iz glaznoy kliniki Gor'kovskogo meditsinskogo instituta imeni S.M.Kirova.

(EYE, foreign bodies,
*extraction of non-magnetic bodies from anterior chamber with two spatulas)
(FOREIGN BODIES,
*eye, extraction of non-magnetic bodies from anterior chamber with two spatulas)

PROTOPOPOV, B.V., professor; DOBROTINA, A.N., kandidat meditsinskikh nauk

Higher nervous function tests in glaucoma . Vest. oft. 33 no.5: 8-10 S-O '54. (MLRA 7:10)

1. Iz kafedry glaznykh bolezney Gor'kovskogo meditsinskogo instituta imeni S.M.Kirova.

(GLAUCOMA, physiology,
higher nervous funct. tests)
(REFLEX, CONDITIONED,
in higher nervous funct. tests in glaucoma)
(CENTRAL NERVOUS SYSTEM, function tests,
higher nervous funct. tests in glaucoma)

PROTOPOPOV, B. V., prof.; RYBNIKOVA, O. I., kand. med. nauk

Novacaine block in therapy of eye diseases. Vest.oft. 34 no.1:26-31
Ja-F '55 (MLRA 8:4)

1. Is glaznoy kliniki Gor'kovskogo med. inst. imeni S. M. Kirova.
(EYE, diseases,
ther. stellate block with procaine)
(PROCAINE, ther. use,
eye dis., stellate block)

PROTOPOPOV, B.V., professor,; GALCHIN, S.A.

Use of ethylcellosolv in the treatment of trachoma. Vest. oft. 69 no.1:34-36 Ja-F '56. (MIRA 9:5)

1. Iz Gor'kovskogo oblastnogo trakhomatoznogo dispansera.
(ETHERS, ther.
ethylene glycol monoethyl ether, in trachoma)
(TRACHOMA, ther.
ethylene glycol monoethyl ether)

PROTOPOPOV, B.V., prof.; MURZIN, A.A.

Use of the proteolytic pancreatic enzymes trypsin and alpha-chemotrypsin in ophthalmology. Sbor. nauch. trud. SOGMI no.14: 96-99 '63. (MIRA 18:9)

1. Kafedra glaznykh bolezney Gor'kovskogo meditsinskogo instituta.

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Nifontov, B. I.; Protopopov, D. D.; Sitnikov, I. YE.; Kulikov, A. V.

B

Underground nuclear explosions: problems concerning industrial application of nuclear blasts (Podzemnyye yadernyye vzryvy; problemy promyshlennykh yadernykh vzryvov) Moscow, Atomizdat, 1965. 157 p. illus., biblio. 2600 copies printed.

TOPIC TAGS: underground explosion, atomic energy, nuclear blast effect, nuclear debris, industrial nuclear application, nonmilitary nuclear application

PURPOSE AND COVERAGE: This book is intended for a wide circle of engineering and technical workers. The authors compile and classify data on experimental underground nuclear explosions in the USA, in the period 1951-1962. Information on projects for the application of underground explosions for industrial purposes is also given. The authors express their gratitude to Corresponding Member of the Academy of Sciences USSR, M.A. Sadovskiy for valuable advice given them at the time the book was written. The authors are grateful also to Z. I.Yefimova, who helped in the preparation of the manuscript.

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SUB CODE: NP SUBMITTED: 11Mar65 NO REF SOV: 003

OTHER: 089

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NIFONTOV, B.I.; PROTOPOPOV, D.D.; SITNIKOV, I.Ye.; KULIKOV, A.V.;
MEL'NIKOVA, A.I., red.

[Underground nuclear explosions; problems affecting industrial nuclear explosions] Podzemnye iadernye vzryvy; problemy promyshlennykh iadernykh vzryvov. Moskva, Atomizdat, 1965. 159 p. (MIRA 18:6)

PROTOPOPOV, G. F.

Regionalization of the mountain forests of Kirghizistan.
Izv. Kir. fil. Geog. ob-va SSSR no.3:189-194 '62.
(MIRA 15:10)

(Kirghizistan—Forests and forestry)

PROTOPOPOV, G.F.

Germination of Picea schrenkiana seeds in the soil as affected by various methods of processing and by various depth of seeding. Trudy Biol.inst.KirFAN SSSR no.3:113-122 '50. (MLRA 8:5)
(SPRUCE)

PROTOPOPOV, G.F.

Experimental seedings and plantings of Picea Schrenkiana on the northern slope of the Kirghiz Ala-Tau Range. Trudy Biol. inst. KirFAN SSSR no.4:147-155 '51. (MLRA 9:10)
(ALA-TAU--SPRUCE)

Protopopov, G. F.

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Vyrashchivaniye seyantsev yeli Shrenka v pitomnike; rezul'taty opytnykh rabot i pukovodstvo (Nursery raising of Schrenk spruce seedlings; results of experimental work and management) Frunze, Izd-vo Kirgizfan SSSR, 1952.

46 p. Tables.

At head of title: Akademiya Nauk SSSR. Kirgizskiy Filial, Frunze, Institut Botaniki i Rasteniyevodstva.

PROTOPOPOV, G.D.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	**Title of Work**	**Nominated by**
Nikitina, Ye.V.	"Flora of the Kirgiz SSR"	Kirgiz Affiliate of the Academy of Sciences USSR
Rozhenits, R.Yu.		
Kashchenko, L.I.		
Protopopov, G.D.		
Popova, L.I.		
Shishkin, B.K.		
Vvedenskiy, A.I.		

SO: W-30604, 7 July 1954

PROTOPOPOV, G. F.

"Fir Forests of the Issykatin Forest ange and Its Experimental Restoration." Cand Agr Sci, Kazakh State Agricultural Inst, Alma-Ata, 1954. (RZhBiol, No. 7, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

PROTPPOPOV, G.F.

Fruiting of the Tien Shan spruce. Trudy Inst.bot. i rast. KirFAN SSSR no.1:133-145 '54. (MIRA 10:1)

(Kirghiz Range--Spruce)

PROTOPOPOV, G.F.

Regeneration of the Tien Shan spruce by natural seeding. Trudy Inst. bot.i rast. KirFAN SSSR no.1:147-164 '54. (MLRA 10:1)
(Kirghiz Range--Spruce) (Reforestation)

GAN, P.A.; PROTOPOPOV, G.F., redaktor; SEREBRYAKOV, V.I., tekhnicheskiy redaktor

[An experiment in the cultivation of white and pubescent birch in the region of the spruce forests of Tien Shan] Opyt razvedeniia berezy borodavchatoi i pushistoi v poiase elovykh lesov Tian'-Shania. Frunze, Izd-vo Akaemii nauk Kirgizskoi SSR, 1955. 14 p.
(Tien Shan--Birch) (MLRA 9:9)

KARAFA-KARBUT, I.G.; PROTOPOPOV, G.F., redaktor; SEREBRYAKOV, V.I., tekhnicheskiy redaktor

[Afforestation experience in dry farming areas of the plains and foothills in the Chu valley] Opyt oblesenila bogarnykh zemel' ravnin i predgorii Chiuskoi doliny. Frunze, Izd-vo Akademii nauk Kirgizskoi SSR, 1955. 34 p. (MLRA 9:9)

(Chu valley--Afforestation)

NIKITINA, Ye.V.; PROTOPOPOV, G.F.; ROZHEVITS, R.Yu. [deceased]; POPOVA, K.I., KASHCHENKO, E.I.; SMIRNOV, L.A.; TKACHENKO, V.I.; YAKUBOVA, P.A.; GOLOVKOVA, A.G.; AYDAROVA, P.A.; SHPOTA, Ye.I.; SHEVCHENKO, D.A.; SHISHKIN, Boris Konstantinovich, professor, doktor biologicheskikh nauk, nauchnyy redaktor; VVEDENSKIY, A.I., nauchnyy redaktor; YEVRUSHENKO, G.A., professor, otvetstvennyy redaktor; KOVALEV, V.N., otvetstvennyy redaktor; SEREBRYAKOV, V.I., tekhnicheskiy redaktor

[The flora of Kirghizistan; classification of the plants of Kirghizistan] Flora Kirgizskoi SSR; opredelitel' rastenii Kirgizskoi SSR. Sost. E.V.Nikitina i dr. Frunze, Izd-vo Akademii nauk Kirgizskoi SSR. Vol.1. [Pteridophyta, Gymnospers and Monocotyledons of the Angiosperms] Paporotnikoobraznye, golosemennye i odnodol'nye iz pokrytosemennykh. 1952. 103 p. Vol. 2. [Grasses and sedges] Zlaki i osokovye. 1950. 315 p. Vol.3. [Aroidae - Orchidaceae] Aroidnye - Orkhidnye. 1951. 148 p. Vol.4. [Salicaceae - Polygonaceae] Ivovye - Grechishnye. 1953. 153 p. Vol. 5. [Families: Chenopodiaceae, Amaranthaceae, Portulacaceae, Caryophyllaceae] Semeistva: Marevye, Amarantovye, Portulakovye, Gvozdichnye. 1955. 185 p. Vol. 6. [Families: Ceratophyllaceae, Ranunculaceae, Berberidaceae, Papaveraceae, Capparidaceae, Cruciferae] Semeistva: Rogolistnikovye, Liutikovye, Barbarisovye, Makovye, Kapersovye, Krestotsvetnye. 1955. 297 p. (MIRA 9:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Shishkin)
(Kirghizistan--Botany)

BORISOVA, A.G.; BOCHANTSEV, V.P.; BUTKOV, A.Ya., dotsent; VASIL'KOVSKAYA, A.P.; VVEDENSKIY, A.I., dotsent; GOLODKOVSKIY, V.L.; GONCHAROV, N.F. [deceased]; DROBOV, V.P., professor; KOROTKOVA, Ye.Ye.; KOSTINA, K.F.; KUDRYASHEV, S.N. [deceased]; LAKHINA, M.M.; LINCHEVSKIY, I.A.; MIRONOV, B.A. [deceased]; PAZIY, V.K.; POYARKOVA, A.I.; PROTOPOPOV, G.F.; SUMNEVICH, G.P. [deceased]; KHAL'ZOVA, K.P.; YUZEPCHUK, S.V.; KOROVIN, Ye.P., *professor, glavnyy redaktor*; ZAKIROV, K.Z., *professor, redaktor*; SHIPUKHIN, A.Ya, redaktor izdatel'stva

[The glora of Uzbekistan] Flora Uzbekistana. Glav. red. E.P.Korovin. Tashkent, Izd-vo Akademii nauk UzSSR. Vol.3. 1955. 825 p. (MLRA 9:10)

1. Deystvitel'nyy chlen AN UzSSR (for Korovin)
(Uzbekistan--Botany)

VYKHODTSEV, I.V.; VASIL'CHENKO, I.T., doktor biologicheskikh nauk, professor, glavnyy redaktor; PROTOPOPOV, G.F., redaktor; TSYBINA, Ye.V., tekhnicheskiy redaktor

[Vegetation of pastures and hay fields of Kirghizistan] Rastitel'nost' pastbishch i senokosov Kirgizskoi SSR. Frunze, Akademiia nauk Kirgizskoi SSR, 1956. 336 p. (MIRA 10:1)
(Kirgizistan--Pastures and meadows)

[illegible] V, G. F.

NIKITINA, Ye.V.; POPOVA, L.I.; AYDAROVA, R.A.; KASHCHENKO, L.I.; PROTOPOPOV, G.F.; UBUKEYEVA, A.U.; TKACHENKO, V.I.; KORNEVA, I.G.; OBOZOV, A.O.; GOLOVKOVA, A.G.; VVEDENSKIY, A.I., nauchnyy redaktor; TSYBINA, Ye.V., tekhnicheskiy redaktor

[Flora of the Kirghiz S.S.R.; guide to plants of the Kirghiz S.S.R.] Flora Kirgizskoi SSR; opredelitel' rastenii Kirgizskoi SSR. Frunze, Izd-vo AN Kirgizskoi SSR. Vol.7. 1957. 642 p. (MLRA 10:9)
(Kirghizistan--Botany)

PROTOPOPOV, G.

Seeds of birches grown in the Frunze Botanical Garden and their germinating capacity. Izv. Bot. sada AN Kir. SSR no.1:39-50 '64.

(MIRA 18:6)

CHESHEV, Leonid Semenovich; PROTOPOPOV, G.F., otv. red.

[Growth of Shrenk spruce stands] Khod rosta nasazhdenii eli Shrenka. Frunze, Izd-vo AN Kirg.SSR, 1963. 36 p.
(MIRA 17:5)

PRUTENSKIY, Dmitriy Ivanovich; NIKITINSKIY, Yuriy Ivanovich;
PROTOPOPOV, G.F., otv. red.; KOVAL'CHUK, V.V., red.izd-va;
ANOKHINA, M.G., tekhn.red.

[Types of nut forests in Southern Kirghizia]Tipy orekhovykh lesov IUzhnoi Kirgizii. Frunze, Izd-vo Akad. nauk Kirgizskoi SSR, 1962. 128 p. (MIRA 16:2)
(Kirghizistan—Walnut)
(Kirghizistan--Forests and forestry)

GAN, P.A.; DZHANAYEVA, V.M.; KARAFA-KORBUT, I.G.; KRIVOSHEYEVA, L.S.; KUNCHENKO, A.I.; ORLOVA, N.A.; PROTOPOPOV, G.F.; PRUTENSKIY, D.I.; TKACHENKO, V.I.; SOROMBAYEVA, N.V., red. izd-va; POPOVA, M.G., tekhn. red.

[Trees and shrubs of Kirghizia]Derev'ia i kustarniki Kirgizii. Frunze, Izd-vo AN Kirgizskoi SSR. No.2. [Families: Liliaceae-Moraceae]Semeistva lileinye-tutovye. 1961. 211 p. (MIRA 15:10)

1. Akademiya nauk Kirgizskoy SSR, Frunze. Institut botaniki. Sektor lesa.

(Kirghizistan--Angiosperms)

PRUTENSKIY, Dmitriy Ivanovich; PROTOPOPOV, G.F., otv. red.; BUTENKO, N.P., red. izd-va; ANOKHINA, M.G., tekhn. red.

[Practices in improving wild fruit trees in the nut and fruit forests of Kirghizistan] Opyt oblagorazhivaniia dikorastushchikh plodovykh v orekho-plodovykh lesakh Kirgizii. Frunze, Izd-vo Akad. nauk Kirgizskoi SSR, 1962. 58 p. (MIRA 15:9)
(Kirghizistan—Fruit culture) (Grafting)

KARAFA-KORBUT, I.G.; PROTOPOPOV, G.F., otv. red.; SOROMBAYEVA, N.V., red.
izd-va; ANOKHINA, M.G., tekhn. red.

[Afforestation of dry areas in the foothills of the Kirghiz Ala-Tau]
Bogarnoe lesorazvedenie v predgor'iakh Kirgizskogo Ala-Too. Frunze,
Izd-vo AN Kirgizskoi SSR, 1961. 246 p. (MIRA 14:6)
(Kirghiz Ala-Tau—Afforestation)

PROTOPOPOV, G. F.

GAN, P.A.; DZHANAYEVA, V.M.; KUNCHENKO, A.I.; LYSOVA, N.V.; NIKITINA,
Ye.V.; PROTOPOPOV, G.F.; PRUTENSKIY, D.I.; TKACHENKO, V.I.;
ANOKHINA, M.G., tekhn.red.

[Trees and shrubs of Kirghizistan] Derev'ia i kustarniki Kirgizii. Frunze. No.1. [Gymnosperms] Golosemennye. 1959. 119 p. (MIRA 13:2)

1. Akademiya nauk Kirgizskoi SSR, Frunze. Institut botaniki. Sektor lesa.
(Khirghizistan--Gymnosperms)

Protopopov, G.F.

PRUTENSKIY, D.I.; PROTOPOPOV, G.F.; YEVTUSHENKO, G.A., red.; ANOKHINA, M.G., tekhn.red.

[Plant trees and shrubs along roads and irrigation systems]
Sozdavaite zelenye nasazhdeniia vdol' dorog i orositel'noi seti.
Frunze, Izd-vo Akad.nauk Kirgizskoi SSR, 1958. 13 p. (MIRA 11:4)
(Roadside improvement)
(Irrigation canals and flumes)

Protopopov, G.F.

KARAFA-KORBUT, I.G.; PROTOPOPOV, G.F., red.; TSYBINA, Ye.V., tekhn.red.

[Afforestation in dry areas of Northern Kirghizistan] Bogarnoe lesorazvedenie v Severnoi Kirgizii. Frunze, Izd-vo AN Kirgizskoi SSR, 1957. 66 p. (MIRA 11:1)
(Kirghizistan--Afforestation)

PROTOPOPOV, I.

Protopopov, I. - "Working with electric tools," (Metalwork), proizvod, obuchcheniye, 1948, No. 12, p. 22-24

SO: U-3600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1949).

BOGDANOV, V.F., inzh.; PROTOPOPOV, I.I., tekhnik

Slit-type distribution device of ion-exchange filters. Energetik 12 no.8:9-10 Ag '64. (MIRA 17:9)

PROTOPOPOV, I.I. (Primorskiy kray)

Clinical aspects of a tumoral form of acute leukemia. Terap.arkh. 31 no.8:22-25 Ag '59. (MIRA 12:11)

(LEUKEMIA case reports)

ZAKRZHEVSKIY, Ye.B., polkovnik med.sluzhby, doktor med.nauk; GOL'DIS, G.M.
polkovnik med.sluzhby; PROTOPOPOV, I.I., podpolkovnik med.sluzhby

Changes in blood and bone marrow in Far Eastern infectious hemorrhagic nephrosonephritis. Voen.-med.zhur. no.10:55-59 O '59. (MIRA 12:12)

(EPIDEMIC HEMORRHAGIC FEVER, pathol.
blood and bone marrow changes (Rus))
(BLOOD
picture in epidemic hemorrh. fever (Rus))
(BONE MARROW, pathol.
in epidemic hemorrh. fever (Rus))

PROTOPOPOV, I.S.; KRAFT, M.Ya.

Reaction of phenol ethers with phosphorus trichloride.
Part 2: Interaction of dimethyl ether of resorcinol with
phosphorus trichloride. Zhur. ob. khim. 34 no. 5:1446-1449
My '64. (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut imeni Ordzhonikidze.

24C

L 47304-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10 IJP(c) GS

ACCESSION NR: AT5007921 S/0000/64/000/000/0274/0287

76
64
B+1

AUTHOR: Bayyer, V. N.; Blinov, G. A.; Bondarenko, L. N.; Yerozolimskiy, B. G.; Korobeynikov, L. S.; Mironov, Ye. S.; Naumov, A. A.; Onuchin, A. P.; Panasyuk, V. S.; Popov, S. G.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinskiy, A. N.; Khabakhpashev, A. G.; Auslender, V. L.; Kiselev, A. V.; Kushnirenko, Ye. A.; Livshits, A. A.; Rodionov, S. N.; Synakh, V. S.; Yudin, L. I.; Abramyan, Ye. A.; Vasserman, S. B.; Vecheslavov, V. V.; Dimov, G. I.; Papadichev, V. A.; Protopopov, I. Ya.; Budker, G. I.

TITLE: Colliding electron-electron, positron-electron, and proton-proton beams

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 274-287

TOPIC TAGS: high energy interaction 18, high energy plasma 21, particle physics, particle beam, charged particle beam

ABSTRACT: In the Institute of Nuclear Physics, Siberian Department, Academy of Sciences SSSR, programs on high-energy particle physics are mainly concerned with work on colliding charged particle beams. The Institute considers it unsuitable

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for its purpose to install huge accelerators whose construction requires large resources outlaid and long time. For work on colliding electron-electron, positron-electron, and proton-proton beams, three installations are being built, which are in various stages of readiness. Work on colliding electron beams was conducted at the institute (then a laboratory of the Institute of Atomic Energy imeni I. V. Kurchatov) in the Fall of 1956, after Kerst's report on accelerators with colliding proton beams of the FFAG type. By that time Soviet scientists had already acquired some experience in obtaining large electron currents; in particular, the mentioned laboratory had installed and then abandoned a device for the spiral storage of electrons (G. I. Budker and A. A. Naumov, CERN Symposium, 1, 76 (1956)), by which, subsequently, circulating currents of the order of 100 amperes were obtained. In 1957 two variants of this device were considered at the same time. The first one consisted of two accelerators with spiral storage and subsequent transition of the particles to synchrotron state in comparatively narrow paths. The second one had storage rings with constant magnetic field and frequent external injection because of the damping of the oscillations under the action of radiation. The first variant was more cumbersome; the second variant contained an element not developed at that time, namely a 100-kilovolt commutator of 10 kilo-amperes with nanosecond front. At the end of 1957, the first positive results were obtained

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with a packing discharger of 100 kilovolts, and work stopped on the variant with storage rings. Originally it was proposed to set up two devices: VEP-1 of 2 × 130 Mev energy, and VEP-2 of 2 × 500 Mev energy. The VEP-1 was considered as an actual model of an accelerator and as a device for conducting initial experiments at low energies. After the Panofsky report in 1958 on his work with colliding electron beams conducted in his laboratory at Stanford, construction ceased on 500-Mev storage paths and work was continued on the 2 × 130-Mev installation. Instead of work on colliding electron beams with energies of 500 Mev, work at the end of 1958 was conducted with colliding positron-electron beams and the planning of the VEPP-2 device was begun, whose main elements are a strong-current electron accelerator and a high-vacuum storage path of 700 Mev energy. At the present time the VEP-1 and VEPP-2 are installed in Novosibirsk. The VEP-1 is in a state of neglect, but at the end of 1964 experiments will be begun with it. Installation of the VEPP-2 has been completed. To obtain a marked effect from the application of colliding proton beams, an accelerator is needed with an energy of at least 10 Gev. Since the ordinary accelerator at such energies is a very bulky machine, it was decided to combine the idea of colliding proton beams with the creation of an iron-less impulse accelerator with very large fields and a neutralized central busbar. This latter work of creating such a machine was reported by the authors at a Moscow conference

Card 3/5

held in 1956. The presence of a field with two directions in an iron-less accelerator with central busbar permits the acceleration of protons toward opposite sides in one machine, which makes possible the collision of protons in case of a suitable race-track. At the present time the Institute is developing a proton device with a magnetic field of about 200 kilogauss and radius of 2 meters for a particle energy of 12 Gev in the beam (equivalent energy is around 300Gev). Tests are being conducted on models, and an effective method of injection by overcharging of negative ions is under study. Also under development are an impulse electric power supply system of 100 million joules capacity and an hf power supply. Since 1958 the Institute has been conducting theoretical investigations on the limits of applicability of quantum electrodynamics [V. N. Bayyer, ZhETF, 37, 1490 (1959), and UFN, 78, 619 (1962)] for the calculation of the radiational corrections to the electrodynamic cross-sections [V. N. Bayyer and S. A. Kheyfets, ZhETF 40, 613-715 (1961) and Nuclear Physics (in print)], and on other problems of high-energy particle physics that are connected with the preparation of experiments on colliding beams [V. N. Bayyer, I. B. Khriplovich, V. V. Sokolov, and V. S. Synakh, in ZhTF, 1961]. The present report takes up under the mentioned three main headings the following pertinent topics: the accelerator-injection, storage paths, electron-optical channel,

L 47304-65
ACCESSION NR: AT5007921

input and output system, experiments on storage, proposed work, experimental set-up, physical layout of magnets, power supply, etc. Orig. art. has: 8 figures.

ASSOCIATION: Institut yadernoy fiziki SO AN SSSR (Institute of Nuclear Physics, SO AN SSSR)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: EE, NP

NO REF SOV: 012 OTHER: 003

mr
Card 5/5

05466
SOV/120-59-3-37/46

AUTHORS: Kolenko, Ye. A., Protopopov, Kh. V., Fleyshman, D. G., and Yur'yev, V. G.

TITLE: Thermoelectric Cooling of Photomultipliers (Termoelektricheskoye okhlazhdeniye fotoumnozhiteley)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3, pp 140-142 (USSR)

ABSTRACT: The device is seen in section in Fig 1; the cooler 11 consists of 80 junctions joined in series and embedded in epoxide resin. The cold ends are in contact with part 3, which touches the glass via springs 2. Cylinder 9 is of insulating material. The heat is removed by the chassis 4. The light enters through a hole in the chassis and cooler; the device is meant for use with star-followers. Fig 2 shows another model, in which the heat is removed by water; the device is meant for use in assays for natural ^{14}C. The units consume 20 - 25 W and provide temperatures 30 - 35°C below room temperature (about -10°C at the photocathode) over volumes of some 800 cm^3. The photocathode must be earthed in this system. Fig 3 shows the noise spectrum of an 11-stage multiplier relative to a solution of p-terphenyl (5 g/litre) at two temperatures. Fig 4

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05466
SOV/120-59-3-37/46

Thermoelectric Cooling of Photomultipliers

shows similar curves for four different types of multiplier; the cooler raises the efficiency of the system for ^{14}C to about 90%. There are 4 figures and 4 references, 3 of which are Soviet and 1 English.

ASSOCIATION: Institut poluprovodnikov AN SSSR (Institute of Semiconductors, Academy of Sciences USSR)

SUBMITTED: May 7, 1958

Card 2/2

PROTOPOPOV, KH. V.

Protopopov, Kh. V. - The Use of the Scintillation Method for the Determination of Age According to Radiocarbon Contents.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

L 11085-66 EWT(1)/EWT(m)/T/EWP(j) IJP(c) AT/GS/RM

ACC NR: AT5023433 SOURCE CODE: UR/0000/65/000/000/0095/0100

44,55

AUTHOR: Protopopov, Kh. V.

B+1

ORG: none

21,44,55 21,44,55

TITLE: Excitons in liquid phase and structure of liquids

SOURCE: Simpozium po elementarnym protsessam khimii vysokikh energiy. Moscow, 1963. Elementarnyye protsessy khimii vysokikh energiy (Elementary processes of the chemistry of high energies); trudy simpoziuma. Moscow, 1965, 95-100

44,55

TOPIC TAGS: exciton, excited state, molecular interaction, particle interaction

ABSTRACT: The problem of weak, medium, and strong interactions between excited and nonexcited molecules in liquid phase is discussed in detail. The structure of aromatic liquids and solutions is discussed in terms of molecular interaction. In the case of strong interaction, there occur free excitons the life of which is $\tau_c < \tau_2/n$, where $\tau \cong 10^{-11}$ sec is the life of orientative relaxation and n--the number of molecules in a domain. As a result of the interaction with the defects of a domain the free exciton becomes localized and forms an excited aggregate (excimer) 21,44,55 with several neighboring molecules of the liquid through resonance interaction. The excimer along with other molecules in a close ordering is called an orienton. 21,44,55 The concepts of excimers and orientons explain many important features of such an excited liquid organic system as anthracene in benzene.

SUB CODE: 20/ 7,44,55 SUBM DATE: 23Feb65/ ORIG REF: 003/ OTH REF: 013

Card 1/1 HW

L 11084-66 EWT(1)/T/ IJP(c) GS/AT

ACC NR: AT5023440

SOURCE CODE: UR/0000/65/000/000/0153/0156

AUTHOR: Protopopov, Kh. V. 44,55

ORG: none

65
B+1

TITLE: Liquid phase energy migration

SOURCE: Simpozium po elementarnym protsessam khimii vysokikh energiy. Moscow, 1963. Elementarnyye protsessy khimii vysokikh energiy (Elementary processes of the chemistry of high energies); trudy simpoziuma. Moscow, 1965, 153-156

44,55

TOPIC TAGS: luminescence, exciton, excited state, excited electron state, electron energy

ABSTRACT: The mechanism of electronic excitation 21,44,55 energy transfer in liquid solutions of aromatic compounds is discussed in terms of excimers and orientons. The excimer 21,44,55 represents an electronically excited aggregate involving a localized exciton and several neighboring molecules. The orienton 21,44,55 is a domain involving an excimer and several molecules surrounding it in short range order through resonance interaction. An orienton is characterized by reduced potential energy and entropy, and a structure resembling that of a crystalline material. Any transformation occurring in an excimer is reflected in a corresponding transformation in the orienton. The orienton concept is supported by the following experimental evidence: quantum yields, scintilla-

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2

L 11084-66

ACC NR: AT5023440

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tion, and long wave electron work function during luminescence are increased when the concentration of benzene, xylene, naphthalene or anisole in various solvents is increased.

SUB CODE: 20/ SUBM DATE: 23Feb65/ ORIG REF: 008/ OTH REF: 011

mf

Card 2/2

VYAZEMSKIY, V.O.; LOMONOSOV, I.I.; PISAREVSKIY, A.N.; PROTOPOPOV, Kh.V.; RUZIN, V.A.; TETERIN, Ye.D.. Prinimal uchastiye KLYUCHNIKOV, V.N.; RYBAKOV, B.V., red.; SMOLYAN, G.L., red.; POPOVA, S.M., tekhn. red.

[Scintillation method in radiometry] Stsintilliatsionnyi metod v radiometrii. By V.O.Viazemskii i dr. Moskva, Gos. izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1961. 429 p. (MIRA 14:9)
(Scintillation counters)

PROTOPOPOV, KH. V.

Protopopov, Kh. V. - The Chemical Processing of Samples at the Radiocarbonic Dating by the Scintillation Method.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

[illegible]

PROTOPOPOV, KH.V.

FLEYSHMAN, D.G.; PROTOPOPOV, Kh.V.

Utilizing the fluorescence of glass for generating short light pulses. Prib.i tekh.eksp. no.6:101-103 N-D '57. (MIRA 10:12)

1. Institut istorii material'noy kul'tury (Leningradskoye otdeleniye).
(Pulse techniques (Electronic)) (Fluorescence)

PROTOPOPOV, Kh.V.

120-6-26/36

AUTHORS: Fleyshman, D.G. and Protopopov, Kh. V.

TITLE: An Application of the Fluorescence of Glass for Producing Short Pulses of Light. (Ispol'zovaniye flyuorestsentsii stekla dlya polucheniya korotkikh impul'sov sveta)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.6, pp. 101 - 103 (USSR).

ABSTRACT: The following methods are normally used to obtain short pulses of light: 1. Kerr cell (Refs. 1 and 2); 2. Gas discharges (Refs.3 and 4); 3. Mechanical chopping devices such as the stroboscopic disc or rotating mirror (Refs. 3 and 5). These methods either involve considerable difficulties or do not produce a "rectangular" pulse. In the present work, the source of light pulses was the fluorescence of glass envelopes of usual radio valves produced during the working of these valves as a result of bombardment of the envelopes by scattered electrons (Ref.7). The colour of this fluorescence is bluish. The circuit used is shown in Fig.1. The valve under investigation was placed above a photomultiplier. The valve works in such a way that in the absence of a triggering pulse on the control grid of the valve the latter was fully cut off. In this way, the current through the valve (and the luminescence of the envelope) only takes place during the action of the signal on

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An Application of the Fluorescence of Glass for Producing Short Pulses of Light. 120-6-26/36

the grid. It is also necessary to minimise the amount of light from the cathode. This is achieved by lowering the temperature of the latter. The valve used was the ГУ-50 pentode, triode connected. The fluorescence of the glass in the case of the ГУ-50 is stronger by a factor of 1.5 than that produced by γ-rays from Co^{60} in a NaI(Tl). Experiments were also carried out on the valve 6ГБС. The mean output current from the photomultiplier, placed immediately above the valve, is a linear function of the mean current through the valve. Figs. 2 and 3 show that for pulse widths up to 10^{-7} sec the form of the light pulse is a good replica of the form of the electrical input pulse. It is pointed out that the device may be considerably improved if, instead of ordinary valves, specially designed valves were to be used. There are 8 figures and 8 references, 7 of which are Slavic.

ASSOCIATION: Institute of History of Material Culture (Leningrad Branch) (Institut istorii material'noy kul'tury (Leningradskoye otdeleniye).

SUBMITTED: March 25, 1957.

AVAILABLE: Library of Congress.

Card 2/2

SOV/120-58-2-5/37

AUTHORS: ~~Protopopov~~, Kh. V., Arslanov, Kh. A., Butomo, S. V. and Timofeyeva, T. V.

TITLE: New Liquid Scintillators (Novyye zhidkiye stsintillyatory)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, pp 24-28 (USSR)

ABSTRACT. Methyl anthranilate scintillators having a high efficiency and which can be used at low temperatures have been studied by the present authors and results of experiments with these scintillators are now reported. The scintillator efficiency was found to increase considerably when naphtalene was introduced into a toluene solution of methyl anthranilate. The change in the efficiency of scintillators on removal of oxygen was found to depend on whether naphtalene was present or not. Particularly noticeable is the increase in the efficiency of terphenyl scintillators containing naphtalene when oxygen is removed from them by means of CO_2. Equally interesting is the increase in the efficiency when small quantities of methanol are added. The effect of the removal of oxygen is illustrated by the following example. After the removal of oxygen a solution of 2.5 g/ℓ of methyl anthranilate containing 3% of methynol, 15% of naphtalene, and 82% of toluene had an efficiency greater by a factor of 1.26

SOV/120-58-2-5/37

New Liquid Scintillators.

compared with a 5 g/ℓ solution of terphenyl in toluene. The characteristics of the various other liquids tried are shown in 4 figures and 1 table. I. Ye. Starik and A.N. Pisarevskiy are thanked for their help. There are 7 references of which 5 are English and 2 are Soviet.

ASSOCIATION: Radiyevyy institut AN SSSR (Radium Institute of the Academy of Sciences USSR)

SUBMITTED: February 28, 1957.

Card 2/2 1. Phosphors--Properties

PROTOPOPOV, KH, V.

Cand Chem Sci, Diss -- "Study of liquid scintillators and their application for the measurement of the radioactivity of natural C^{14}". Leningrad, 1961. 21 pp, 22 cm (Min of Higher and Inter Spec Educ RSFSR. Leningrad Order of Labor Red Banner Technol Inst imeni Lensovet), 180 copies, Not for sale, bibl on pp 20-21 (KL, No 9, 1961, p 177, No 24282). [61-53023]

KNIGIN, M.I., inzh.; PROTOPOPOV, L.A., inzh.

Automatization of storage battery setups. Elek. sta. 29 no.10:70-74
O '58. (MIRA 11:11)
(Storage batteries) (Automatic control)

PROTOPOPOV, L.D., red.; KUZNETSOVA, M.I., red.izd-va; MATVEYEVA, A.Ye., tekhn. red.

[Instructions 37-55 for determining the capacity and calibration of stationary vertical tanks for petroleum products] Instruktsiia 37-55 po opredeleniiu vmestimosti i kalibrovke statsionarnykh vertikal'nykh rezervuarov dlia nefteproduktov. Izd. ofitsial'noe. Moskva, 1957. 31 p. (MIRA 14:5)

1. Russia(1923- U.S.S.R.) Komitet standartov, mer i izmeritel'nykh priborov.

(Tanks)

PROTOPOPOV, L.D., red.; KUZNETSOVA, M.I., red.izd-va; KASHIRIN, A.G., tekhn.red.

[Instructions 37-55 for determining the capacity and calibration of fixed vertical petroleum products tanks] Instruktsiia 37-55 po opredeleniiu vmestimosti i kalibrovke statsionarnykh vertikal'nykh rezervuarov dlia nefteproduktov. Izd.ofitsial'noe. Moskva, Standartgiz, 1960. 39 p. (MIRA 13:11)

1. Russia (1923- U.S.S.R.) Komitet standartov, mer i izmeritel'nykh priborov. (Tanks)

PROTOPOPOV, L.D., redaktor

[Instructions 37-55 for determining the capacity and calibration of stationary vertical reservoirs for petroleum products] Instruktsiia 37-55 po opredeleniiu vmestimosti i kalibrovke statsionernykh vertikal'nykh rezervuarov dlia nefteproduktov. Izd. ofitsial'nykh rezervuarov dlia nefteproduktov. Izd. ofitsial'noe. Moskva, 1956. 30 p. (MLRA 9:11)

1. Russia (1923- U.S.S.R.) Komitet standartov, mer i izmeritel'nykh priborov.
(Petroleum products--Storage) (Tanks)

PROTOPOPOV, L.N.

Device for regulating the output of dressed products from the concentration table. Gor. zhur. no.9:76 S '64. (MIRA 17:12)

18

L 4237-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) OS
ACCESSION NR: AT5007979 S/0000/64/000/000/1065/1072

51
B+1

AUTHOR: Abramyan, Ye. A.; Bender, I. Ye.; Bondarenko, L. N.; Budker, G. I.; Glagolev, G. B.; Kadymov, A. Kh.; Neshkov, I. N.; Naumov, A. A.; Pal'chikov, V. Ye.; Panasyuk, V. S.; Popov, S. G.; Protopopov, I. Ya.; Rodionov, Yu. I.; Samoylov, I. M.; Skrinskiy, A. N.; Yudin, L. I.; Kon'kov, N. G.; Mostovoy, Yu. A.; Nezhevenko, O. A.; Ostreyko, G. N.; Petrov, V. V.; Sokolov, A. A.; Timoshin, I. Ya.

TITLE: Work on the strong-current accelerators of the Nuclear Physics Institute, SO AN SSSR. (I) Strong-current pulse accelerators with spiral storage of the electrons. (II) Strong-current accelerators with one-revolution capture of the injected electrons

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 1065-1072

TOPIC TAGS: high energy accelerator, electron accelerator, electron beam, betatron, plasma

ABSTRACT: The work on developing strong-current electron ring accelerators was begun in 1965 by the authors at the Nuclear Physics Institute, Siberian Department, Academy of Sciences SSSR, with the object of studying the possibility of

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ACCESSION NR: AT5007979

forming relativistic stabilized beams. In the laboratories of the Institute experimental studies were carried out on the four methods for obtaining large ring currents of relativistic electrons: (1) spiral method of storing the electrons in installations of the betatron type with subsequent betatron synchrotron acceleration (Budker G. I. CERN Symposium 1, 68 (1956); (2) obtaining of limiting electron currents by means of the injection of electrons from a strong-current linear accelerator into a ring chamber of large aperture with subsequent synchrotron acceleration; (3) storage of electrons in tracks (parking orbits) with constant magnetic field by means of the multiple injection of electrons from another less strong-current accelerator; this method is utilized for the storage of electrons and positrons in experiments with colliding beams (expounded in detail by G. I. Budker in the present collection, p. 274); (4) obtaining of large electron currents by means of the acceleration of electrons by a ring plasma. The present report discusses the first two methods under the following topics: (I) pulsed iron-less betatron with preliminary charge storage (B-2 device); strong-current pulsed synchrotron B-2S; pulsed strong-current betatron with spiral storage (B-3 device). (II) iron-less one-turn strong-current synchrotron (BSB); strong-current pulsed synchrotron B-3M. Orig. art. has: 7 figures.

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L 4237-66

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ACCESSION NR: AT5007979

ASSOCIATION: Institut yadernoy fiziki SO AN SSSR (Nuclear Physics Institute, SO AN SSSR)

SUBMITTED: 26May65 ENCL: 00 SUB CODE: NP

NO REF SOV: 001 OTHER: 001

Card 3/3

MITEL'MAN, M., brigadir; GLEBOV, B., inzh., istorik; UL'YANSKIY, A.; IVANOV, G.A., red.; KALAUSHINA, K.Ye., red.; PROTOPOPOV, M.I., red.; ROZANOV, M.D., red.; BACHILO, I., red.; VINOGRADOV, V., mladshiy red.; MOSKVINA, R., tekhn. red.

[History of the Kirov (formerly Putilov)Metallurgical and Machinery Plant in Leningrad] Istoriia Kirovskogo (byv. Putilovskogo) metallurgicheskogo i mashinostroitel'nogo zavoda v Leningrade. Moskva, Izd-vo sotsial'no-ekon. lit-ry. Vol.1. [History of the Putilov Plant 1801-1917] Istoriia Putilovskogo zavoda, 1801-1917. Izd.3. 1961. 719 p. (MIRA 15:2)

1. Leningrad. Institut istorii partii.
(Leningrad--Machinery industry)

[illegible], [illegible], kand. tekhn. nauk, dotsent

The [illegible] of [illegible], brigades and snowworkers of com-
munal labor in [illegible] transportation. Trudy LIVT no.178
(MIRA 18:[illegible])
[illegible]

PROTOPOPOV, M.M.

BELYAYEV, A.M.; IOFFE, E.I.; PERVOZVANSKIY, A.I.; NAVASARDYAN, Ye.N.; BLIOKH, S.S.; REVAZASHVILI, B.I.; PROTOPOPOV, M.M.; RAKHMATULLIN, K.Kh.; SEMENOV, V.I.; KRIVOSHEIN, S.S.; SHVETSOV, A.P.; MAKAROV, M.F.; OTROZHDENNOV, A.I.; ZHUKOV, D.D.; BELYAYEV, A.M.

Speeches. Trudy Mekhanobr. no.93:122-173 '56. (MIRA 11:6)
(Ore dressing--Equipment and supplies) (Waste products)

Protopopov, M.

MALINSKIY, V.Ye.; PROTOPOPOV, M.S.

Transporting assembled metal supports for electric power lines.
Rats. i izobr. predl. v stroi. no.150:3-7 '56. (MIRA 10:5)
(Electric lines--Poles)

9.2580

69083

S/120/60/000/01/023/051
E192/E382

AUTHORS: Kul'gavchuk, V.M. and Protopopov, N.A.

TITLE: A Generator of Powerful Pulse Currents

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 1, pp 85 - 89 (USSR)

ABSTRACT: It is shown theoretically that by employing a delay line it is possible to obtain current pulses having a shorter rise time than the pulses which can be obtained by discharging a capacitor. A pulse generator based on the former system was constructed. The basic elements of the system are shown in Figure 2. In order to obtain a very low characteristic impedance (about 0.2Ω), a set of coaxial lines employing 400 segments of the coaxial cable type RK-3, connected in parallel, was employed. The operating voltage of the cable was 5.5 kV. However, this could be increased up to 100 kV since the voltages were of short duration. In order to eliminate the possibility of the appearance of a corona at the open ends of the lines in the generator, the coaxial cable sections having a length of 20 m were formed into loops, whose terminals

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were connected to a common collector (see 2 in Figure 2). Such a loop is equivalent to two open-circuited lines having a length of 10 m, which are connected in parallel. The pulse obtained with such a line is 10^{-7} sec. Each loop is wound on a separate spool and fifty of these are assembled on a single stand. Each stand is enclosed in a metal screen, as is shown in Figure 3. The collector of the line sections (see Figure 2) is in the form of a metal-base plate having 408 apertures. A high-voltage discharge electrode 5 is fixed to the collector on a plexiglass insulator. Such a construction of the collector results in the reduction of its inductance to 3×10^{-8} H. In order to measure the current and voltage pulses of the generator, a special system was employed. This permitted the transmission of the current pulses with the rise times of 10^{-8} sec and voltage pulses with a rise time of 10^{-9} sec; it was also possible to delay the pulses by 4

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0.2 μs before applying them to the oscillograph. The current was measured by employing the Rogowski cylinder from which the voltage was collected by a cable having a length of 40 m. The voltage pulses were also measured oscillographically and a special capacity potential divider was employed for the purpose. The diagram of the divider is shown in Figure 5 and its mechanical construction is illustrated in Figure 6. An example of the oscillographic recordings of current and voltage is given in Figure 7; these were obtained during the "explosion" of a copper wire, having a diameter of 0.1 mm and a length of 25 mm, the voltage being 19 kV. The generator was tested in the short-circuit condition as well as with a matched load. In the short-circuit test the generator produced current pulses of 0.3 μs duration with the maximum current of 250 kA. A typical oscillogram of the current in this test is shown in Figure 8. The generator was employed for the investigation of the electrical explosion of conducting wires.

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The authors express gratitude to A.A. Bezrukov and Yu.K.Gundorov for help in the construction of the generator and also to F.V..Kashin for help in carrying out the experiments. There are 8 figures and 6 references, 1 of which is English, 1 German and 4 are Soviet.

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PROTOPOPOV, N.A.; KUL'GAVCHUK, V.M.

Determining the sublimation energy of the system Pd - H by means of the pulse method [with summary in English]. Inzh.-fiz. zhur. 4 no.9:102-103 S '61. (MIRA 14:8)
(Sublimation (Physical sciences)) (Electric discharges)
(Oscillography)

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Theory of the mechanism of current pauses and shock waves arising in the heating of a metal by high-density electric current pulses. Zhur.tekh.fiz. 31 no.5:557-564 My '61. (MIRA 14:7)
(Shock waves) (Dielectric heating)

PROTOPOPOV, N.A.; KUL'GAVCHUK, V.M.

Pulse method of determining sublimation energy in metals and alloys. Inzh.fiz.zhur. 4 no.7:84-90 Jl '61. (MIRA 14:8)
(Sublimation (Physical sciences)) (Oscillography)

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AUTHORS: Protopopov, N. A., Shishkin, Yu. B., Kul'gavchuk, V. M., Sobolev, V. I.

TITLE: The technique of investigating the processes of slowing down fission fragments in metals and alloys

PERIODICAL: Atomnaya energiya, v. 10, no. 2, 1961, 166-168

TEXT: The problems of slowing down fission fragments which are important for the production of fuel elements have so far not been investigated sufficiently, and, above all, data for metals and alloys that are used in the production of fuel elements are not available. But just this case is free from difficulties of identifying the fragments. The specific energy losses and ranges of the fragments may be determined immediately by experiments. In order to solve this open problem it is sufficient to know the specific energy losses of the fragments as depending on their range. Fig. 1A shows a schematic diagram of the experimental arrangement for the investigation of U^{235} fission fragment penetration into metals and alloys. The principal

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